INSTRUCTION MANUAL
MODEL 9610
TIMING TERMINAL UNIT
PART NUMBER 9610-7041

datum inc.

Timing Instrumentation

INSTRUCTION MANUAL

MODEL 9610

TIMING TERMINAL UNIT

PART NUMBER 9610-7041

MASTER COPY

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SECTION I
DESCRIPTION

The Model 9610-7041 Timing Terminal Unit consists of the Model 9610-140 chassis, a Model 9610-150 Power Supply, a Model 9610-2111 Dual Differential Digital Driver and five (5) Model 9610-219 Dual Cable Drivers.

The top assembly drawing in Section V shows the locations of these plug-in functional modules, and the input/output connectors. See Wiring Diagram 9610-8166 for input/output connections.

The dual line driver input (1) and outputs (12) are via BNC type coax connectors and are also identified by the channel number (module position) in which they are installed in the chassis.

General descriptions of the 9610-140, -150-1-219 and -2111 can be found on the following pages.

MODEL 9610-140 CHASSIS

GENERAL DESCRIPTION

The Model 9610-140 Chassis is a housing assembly of the DATUM, Inc. Model 9610 Timing Terminal Unit System. The various module mounting needs, power interconnection, and input/output signal connection capability are provided via wiring between the several module connectos provided in the chassis.

Up to 14 single-width modules (or up to 7 double-width modules) or any appropriate combination of widths may be accommodated in a single Model 9610-140 Chassis. Seven module connectors are supplied in the basic configuration.

Up to 96 input/output line connections (24 input pairs, 24 output pairs) may be made via terminal strips mounted on the instrument's rear panel. The basic configuration provides 42 input/output line connections (7 input pairs, 14 output pairs).

Primary power is accepted via the three pin connector which mates with the supplied power cord.

The Model 9610-140 Chassis is 3-1/2 inches high X 10 inches deep X 17 inches wide, equipped with mounting ears for installation in a standard 19-inch equipment cabinet.

MODEL 9610-150-1 POWER SUPPLY
(P/N 16445)

GENERAL DESCRIPTION

The Model 9610-150 Logic Power Supply is a double width, (H-3.28" x W-2.30"), functional module of the DATUM, Inc. Model 9610-XXX Timing Terminal Unit System that provides power for the other modules in the system.

The Model 9610-150 Power Supply provides the following power outputs:

1. +5 volts at 0.20 amperes
2. +15 volts at 0.20 amperes
3. -15 volts at 0.20 amperes
4. +23 volts at 0.30 amperes

SPECIFICATIONS

1. Power
   a. Input

   115 ± 10%/220V ± ,10% 50 to 400 Hz, 30 watts

   Line voltage taps of 5% are provided for nominal line voltages of :

110 volts - connect E2 to E8 115 volts - connect E2 to E9 120 volts - connect E2 to E10	E5 to E7
210 volts - connect E2 to E8 220 volts - connect E2 to E9 230 volts - connect E2 to E10	E5 to E6

b. Output, Full Load

Voltage	Current	Ripple
+23 volts 10% unregulated	0.30 amperes	2V
+15 volts 5%	0.20 amperes	10MV
-15 volts 5%	0.20 amperes	10MV
+5 volts 5%	0.20 amperes	10MV

Each regulated voltage is over-current protected.

Pin configuration is as follows

1. +5 volt power	A. +5 volts power
2. +5 volt return	B. +5 volts return
3. +15 volt return	C. +15 volts return
4. +23 volt unregulated power	D. +23 volt unregulated power
5. +15 volt power	E. +15 volt power
6. -15 volt return	F. -15 volt return
7. -15 volt power	H. -15 volt power
8. AC power neutral	J. AC power neutral
9. AC line (high side)	K. AC line (high side)
10. AC line (low side)	L. AC line (low side)

2. Mechanical: Front Panel: H-3.28" X W-2.30"
   Connector: 20 pin, edge of card plated
   Mounting: Front Panel thumbscrews
   Depth: 6.8 inches after mounting

MODEL 9610-219 DUAL CABLE DRIVER
(P/N 16041)

GENERAL DESCRIPTION

The Model 9610-219 Dual Cable Driver is a functional module of the DATUM Inc. Model 9610 Timing Terminal Unit system. Power and input/output connections are provided by the Model 9610-140 chassis and Model 9610-150 Power Supply assemblies which are also a part of the 9610 system.

The Model 9610-219 Dual Cable Driver may be installed in any of the twelve (12) module connector locations of the Model 9610-140 Chassis to provide two (2) independent, isolated Cable Driver functions for signal distribution.

SPECIFICATIONS

1. Power Requirements (Nominal)
   a. +15 volts at 10 mA.
   b. -15 volts at 10 mA.

2. Signals

a.	Input Signals:	AC or DC, 0 to ±15 volts
b.	Frequency Range:	DC to 5 MHz
c.	Input Impedance:	Approximately 50K ohms up to 1 MHz, decreasing to about 5K ohms at 5 MHz.
d.	Output Impedance:	50 ohms (100 mA maximum)
e.	Voltage Gain:	0 db.

The output signal is individually adjustable from the front panel from the input signal level to essentially zero. Front panel test-points are provided on the input and output signal lines of each amplifier.

3. Pin Configuration

1.	Input (Channel A)	A.	Input Return (Channel A)
2.	Not Used	B.	Not Used
3.	Not Used	C.	Not Used
4.	Output (Channel A)	D.	Output Return (Channel A)
5.	+15 volt power	E.	+15 volt power
6.	Not Used	F.	Not Used
7.	Input (Channel B)	H.	Input Return (Channel B)
8.	±15 volt power return	J.	±15 volt power return
9.	-15 volt power	K.	-15 volt power
10.	Output (Channel B)	L.	Output Return (Channel B)

DUAL DIFFERENTIAL DIGITAL DRIVER
MODEL 9610-2111
Assembly No. 15439

GENERAL DESCRIPTION

The Model 9610-2111 Dual Differential Digital Driver is a functional module of the DATUM Model 9610 Timing Terminal Unit system. Power and input/output connections are provided by the Model 9610-140 series chassis and Model 9610-150 series power supply assemblies which are integral components of the 9610 system.

The Model 9610-2111 Dual Differential Digital Driver may be installed in any appropriate module connector of the Model 9610-140 series chassis to provide two (2) independent differential TTL line driver outputs from TTL compatible inputs.

The Model 9610-2111 is provided with output loss alerting (alarm buss activation and visual LED indication) along with a means to test and to reset the alarms. In most cases, this feature is disabled at the factory by providing a constant reset (ground) to the alarm circuitry in the chassis wiring. This feature may be enabled by removing the ground from the reset pin and providing an external means of testing and resetting the alarms (Refer to input specifications).

SPECIFICATIONS

1. Power Requirements (Nominal)
   a. Positive supply voltage: -6 volts at 45 milliamperes
   b. Negative supply voltage: -6 volts at 45 milliamperes
   c. +5 volts at 70 milliamperes

2. Inputs
   a. Levels: Logic "0": +0.4V ±0.4VDC
      Logic "1": +3.5V ±1.5VDC
   b. Input Impedance: TTL/DTL compatible
   c. Alarm Test: Momentary closure to ground
   d. Alarm Reset:
      A momentary closure to ground will reset the alarm buss and indication. If a fault still exists, the fault indication will reappear upon removal of the closure to ground.

3. Outputs
   a. Output characteristics: Differential TTL outputs, capable of supplying TTL output levels ("0" = +0.2V ±0.2V, "1" = +3.7V ±1.3V) into a load of 50 ohms to ground. Derived from a National Semiconductor DS8830N driver. Refer to National Semiconductor "INTERFACE DATA BOOK" for further details.

4. Pin Configuration

1. Input A	A. Input A (Return)
2. +5 Volts	B. +5 Volts
3. Alarm Test	C. Not Used
4. Output A	D. Output A (Return)
5. Positive Supply Voltage	E. Positive Supply Voltage
6. Alarm Reset	F. Alarm Buss
7. Input B	H. Input B (Return)
8. Power Ground	J. Power Ground
9. Negative Supply Voltage	K. Negative Supply Voltage
10. Output B	L. Output B (Return)

SECTION II
THEORY OF OPERATION

The theories of operation as enumerated in the Table of Contents can be found on the following pages.

MODEL 9610-150-1 POWER SUPPLY
(P/N 16445)

THEORY OF OPERATION

The Power Supply consists of three similar bridge rectifiers, filters and regulator circuits providing +15 volts (CRS1, C3, C4, C5 and A2), -15 volts (CRS3, C8, C9, and A1), and +5 volts (CRS2, C6, C7 and A3) power outputs and an unregulated output of +23 volts nominal.

Each bridge rectifier output is filtered by capacitors sized for the maximum regulated current outut of the respective supply. Each integrated circuit regulator output voltage is dtermined by the regulator type used. The regulators are overcurrent and short circuit protected.

The AC power input is fused and bypassed to the power neutral in the Model 9610-140 series Chassis. The power switch and indicator lamp are mounted on the front panel of the power supply.

ADJUSTMENTS

No adjustments are required on the 9610-150 Power Supply.

MODEL 9610-219 DUAL CABLE DRIVER
(P/N 16041)

THEORY OF OPERATION

The Dual Cable Driver consists of two identical amplifiers on a single card. Each channel consists of an input adjustment potentiometer (R1, R6) coupled into a voltage gain of one integrated circuit current amplifier (A1, A2) which is coupled to the output through a 39 ohm resistor (R5, R10). Provision have been made to parallel this resistor with a small "speed-up" capacitor (C5, C10), if desired.

DUAL DIFFERENTIAL DIGITAL DRIVER
MODEL 9610-2111
Assembly No. 15439

THEORY OF OPERATION

The Dual Differential Digital Driver consists of two electrically identical driver and output-monitor circuits on a single circuit card. Each input is routed to a TTL-to-differential converter/driver which is direct-coupled to the output.

The converter's output is additionally routed to an differential-to-TTL converter. The output of this converter serves as a clock for a one-shot multivibrator used as an activity sensor. As long as the output is active, the activity sensor remains "set". If the output should fail, the activity sensor "times out", setting an R-S latch, illuminating the associated L.E.D. indicator and activating a diode-OR'ed alarm buss. The R-S latch may be reset by supplying a momentary closure to ground on pin 6 of the circuit card.

Activating the alarm test input (pin 3) momentarily disables the differential-to-TTL converter, allowing the activity sensor to "time out".

SECTION III
MAINTENANCE AND TROUBLESHOOTING

GENERAL

The Model 9610 Timing Terminal Unit System requires no routine electronic maintenance. The following instructions are intended to be a guide in the event of a system malfunction and to isolate the malfunction to a plug-in module. Adjustments should not be made unless there is an established malfunction attributable to misadjustment. Once the malfunctioning module has been determined, failed components may be found with standard troubleshooting techniques.

MALFUNCTION ISOLATION INSTRUCTIONS

1. Verify that all fuses are good and are seated firmly in their sockets.

2. Verify that all power inputs are within the specifications as defined in Section I.

3. Verify that input signals are within their specified limits as defined in Section I.

4. If under the above conditions the module does not meet its output specifications, the module has malfunctioned.

SECTION IV
RECOMMENDED SPARE PARTS

In order to insure continuous on-line operation with minimum down time for maintenance, it is recommended that spares be maintained at the module level rather than the component level at the using activity site.

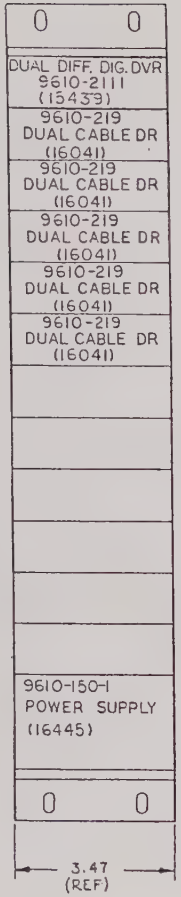
It is recommended that 10% of the modules used or minimum of one (1) module of each type used (whichever is greater) be maintained at the using activity site.

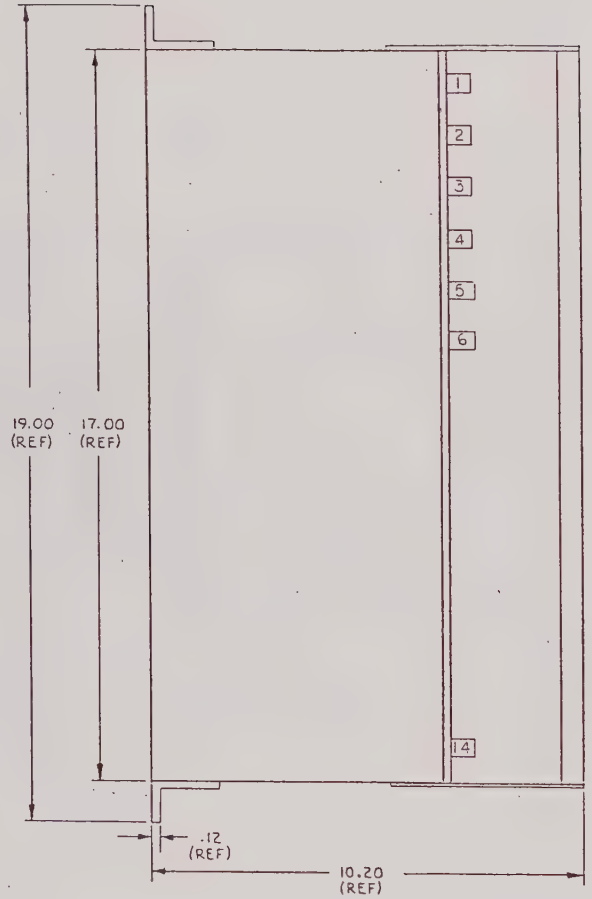
The module types and quantities utilized in the system may be determined from the Top Assembly Drawing in Section V of this instruction manual.

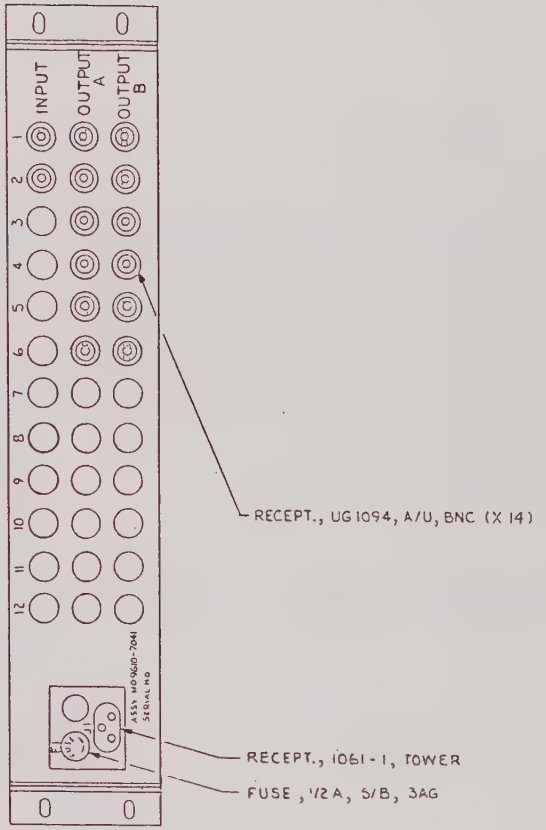
SECTION V
DRAWINGS

The Drawings enumerated in the Table of Contents can be found on the following pages.

REVISIONS			
LTR	DESCRIPTION	DATE	APPROVED







2. J1 AC POWER INPUT
1. WIRING DIAGRAM 9610-8166

NOTES: UNLESS OTHERWISE SPECIFIED

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UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
XX ± .03
FOR XXX ± .010
ANGLES ± 1/2°

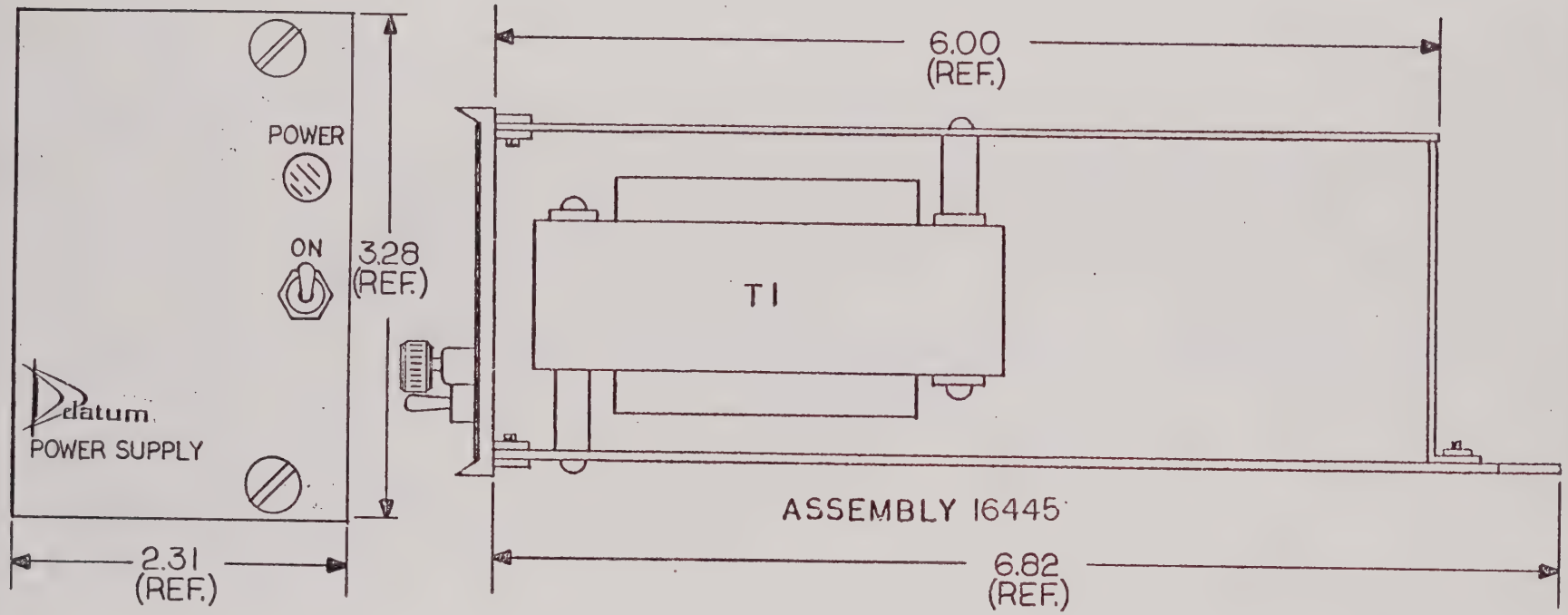
TITLE: TIMING TERMINAL UNIT

Datum inc.
1363 S. STATE COLLEGE BLVD.
ANAHEIM, CALIFORNIA 92806

BRENT H.	10/15/86	DES	
CHK SATINDER	10/16/86	ENGR	
SCALE NONE	FSC 31160	C 9610-7041	SIZE / SHT 1 OF 1 / REV

© BISHOP GRAPHICS/ACCUPRESS

REVISIONS			
LTR	DESCRIPTION	DATE	APPROVED



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UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOL: .XX ±.03 .XXX ±.010 ANGLES ±1/2°

TITLE: POWER SUPPLY

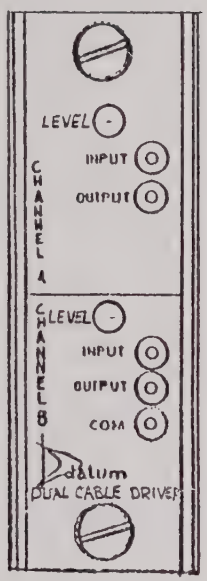
DWN TERI	3/29/82	DES		A	9610-150-1
CHK		ENGR W	8/82		
SCALE NONE		FSC 31160		SIZE	SHT | OF | REV

Datum inc.
1363 S. STATE COLLEGE BLVD.
ANAHEIM, CALIFORNIA 92803

REVISIONS

LTR	DESCRIPTION	DATE	APPROVED

FRONT PANEL



ASSEMBLY 16041

NOTES: UNLESS OTHERWISE SPECIFIED

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UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOL: .XX ±.03
.XXX ±.010
ANGLES ± 1/2°

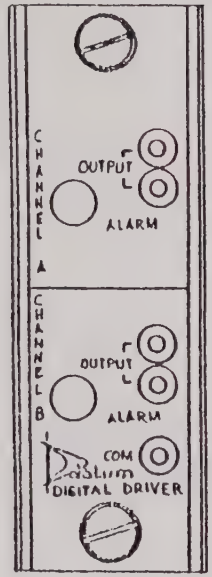
TITLE: DUAL DC CABLE DRIVER

datum inc.
1363 S. STATE COLLEGE BLVD.
ANAHEIM, CALIFORNIA 92806

DWN	TERI	3/29/82	DES		A	9610-219	
CHK			ENGR	J. Lee 5/84			
SCALE	NONE		FSC	31160	SIZE	SHT | OF |	REV

REVISIONS			
LTR	DESCRIPTION	DATE	APPROVED

FRONT PANEL



ASSEMBLY 15439

NOTES: UNLESS OTHERWISE SPECIFIED

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UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOL: .XX ± .03
.XXX ± .010
ANGLES ± 1/2°

TITLE
DUAL DIGITAL DRIVER

Datum inc.
1363 S. STATE COLLEGE BLVD.
ANAHEIM, CALIFORNIA 92806

DWN	TERI	1/17/85	DES		A	9610-2111	
CHK			ENGR	W 1/85			
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REVISIONS			
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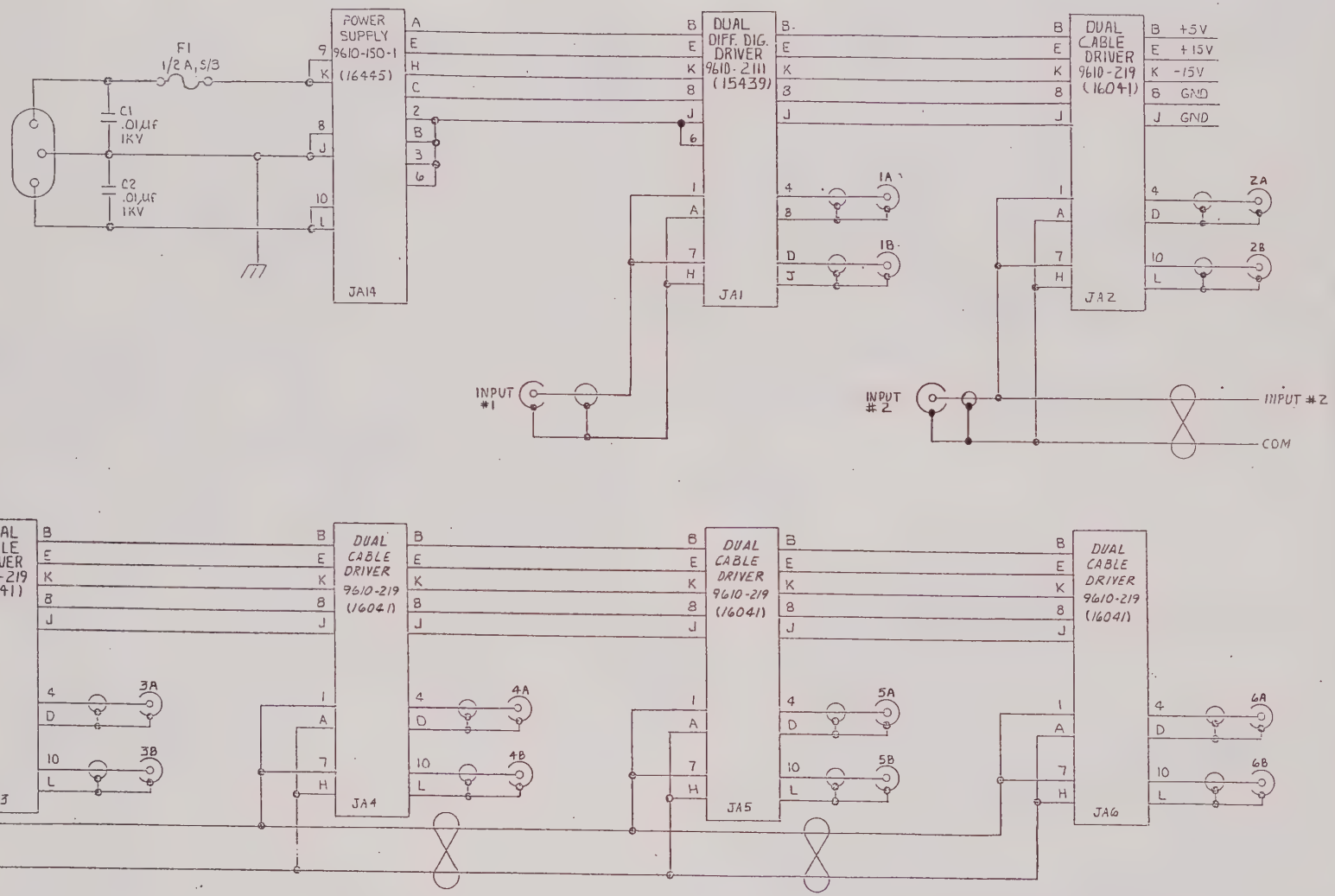

NOTES: UNLESS OTHERWISE SPECIFIED

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UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOL: XX ± .03 ANGLES ± 1/2°

TITLE: WIRING DIAGRAM 9610-7041

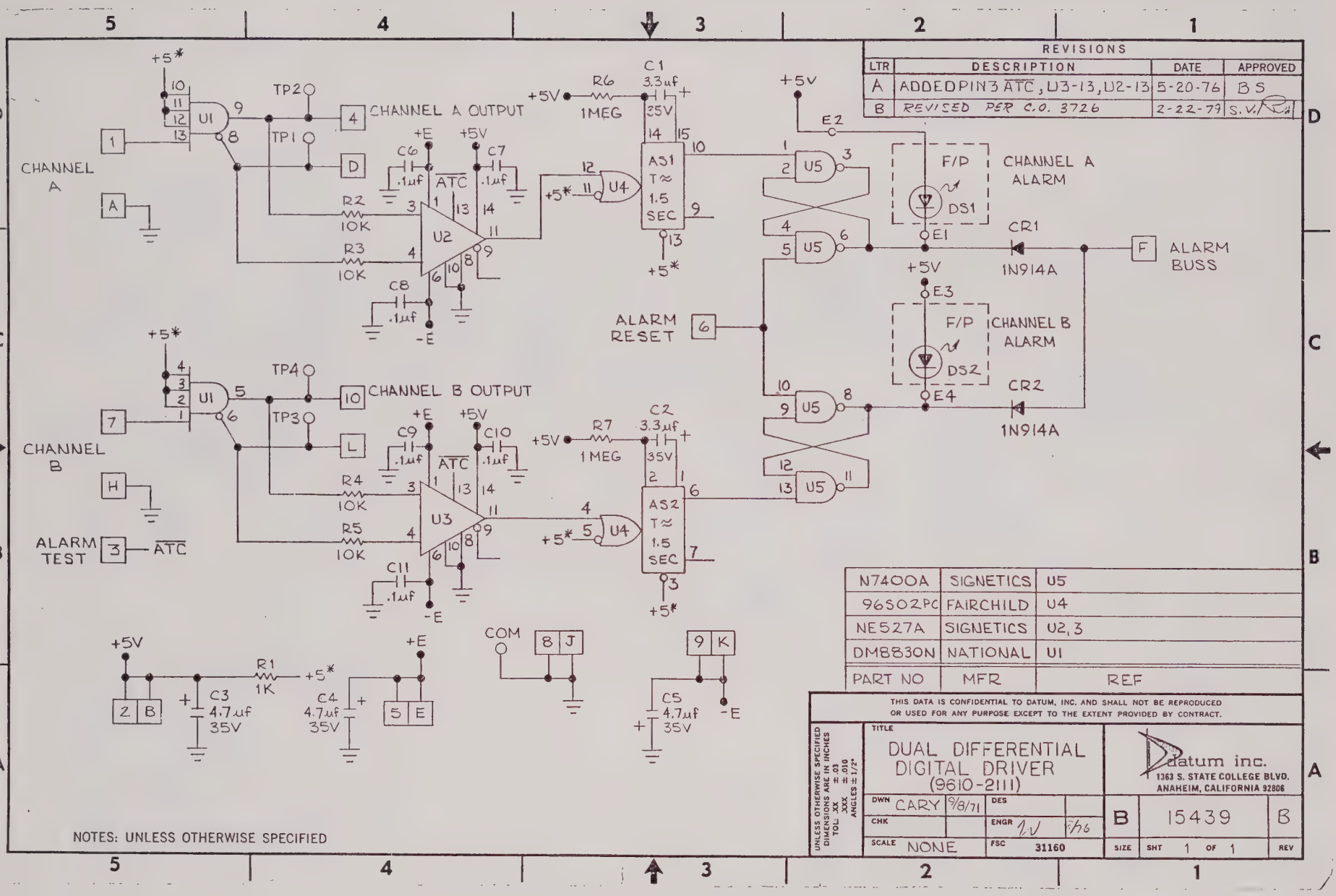
datum inc. 1363 S. STATE COLLEGE BLVD. ANAHEIM, CALIFORNIA 92806

DWN	JIM	10/15/86	DES		
CHK			ENGR		
SCALE	NONE		FSC	31150	

C 9610-8166

SIZE | SHT | OF | REV

BISHOP GRAPHICS/ACCUPRESS


REVISIONS
LTR | DESCRIPTION | DATE | APPROVED
A | ADDED PIN 3 ATC, U3-13, U2-13 | 5-20-76 | B S
B | REVISED PER C.O. 3726 | 2-22-79 | S.V.
CHANNEL A
CHANNEL A OUTPUT
CHANNEL B
CHANNEL B OUTPUT
ALARM TEST
ATC
ALARM RESET
CHANNEL A ALARM
CHANNEL B ALARM
F/P
DS1
DS2
CR1
CR2
1N914A
ALARM BUSS
U1
U2
U3
U4
U5
AS1 T≈ 1.5 SEC
AS2 T≈ 1.5 SEC
R1 1K
R2 10K
R3 10K
R4 10K
R5 10K
R6 1MEG
R7 1 MEG
C1 3.3uf 35V
C2 3.3uf 35V
C3 4.7uf 35V
C4 4.7uf 35V
C5 4.7uf 35V
C6 .1uf
C7 .1uf
C8 .1uf
C9 .1uf
C10 .1uf
C11 .1uf
TP1
TP2
TP3
TP4
+5V
+5*
+E
-E
COM
E1
E2
E3
E4
N7400A | SIGNETICS | U5
96S02PC | FAIRCHILD | U4
NE527A | SIGNETICS | U2, 3
DM8830N | NATIONAL | U1
PART NO | MFR | REF
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UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOL .XX ± .03 .XXX ± .010 ANGLES ± 1/2°
TITLE
DUAL DIFFERENTIAL DIGITAL DRIVER (9610-2111)
datum inc.
1363 S. STATE COLLEGE BLVD. ANAHEIM, CALIFORNIA 92806
DWN CARY 9/8/71
CHK
DES
ENGR 1.V 7/76
SCALE NONE
FSC 31160
B | 15439 | B
SIZE | SHT 1 OF 1 | REV
NOTES: UNLESS OTHERWISE SPECIFIED

REVISIONS			
LTR	DESCRIPTION	DATE	APPROVED
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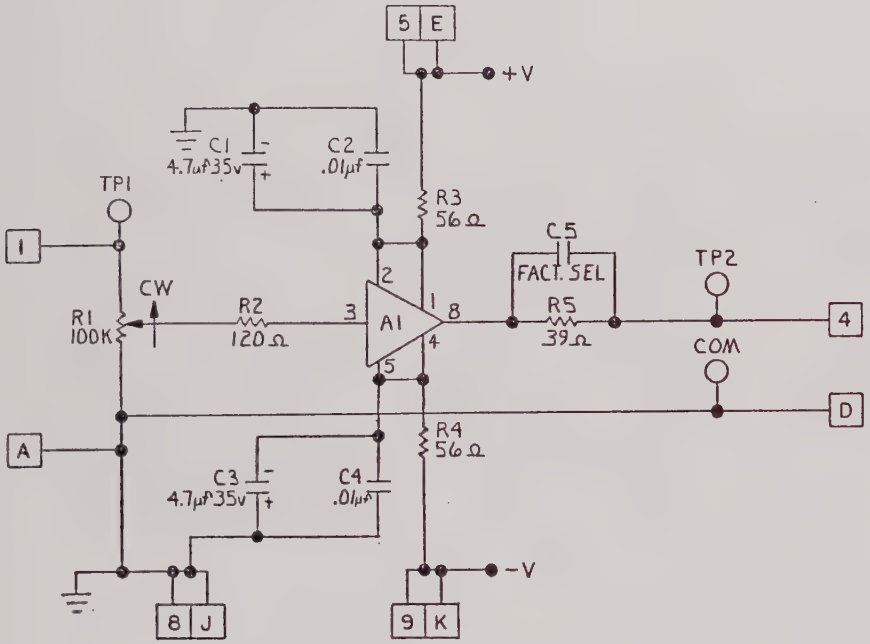

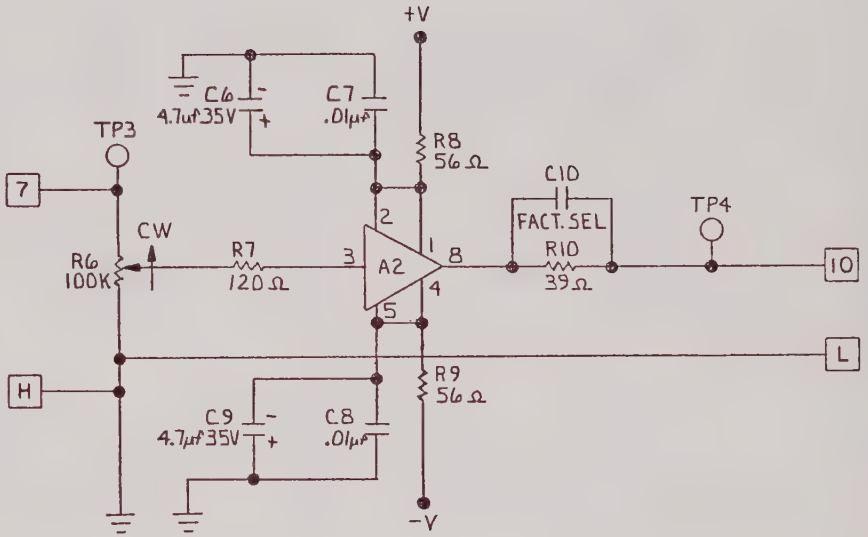

1. NORMAL OPERATING VOLTAGE FOR +V & -V ARE FROM 5 TO 18 VOLTS.

NOTE:

FREQ. BAND: DC TO 5MHz
INPUT IMPED: 100K
OUTPUT IMPED: 50Ω
VOLTAGE GAIN: X1
POWER (±15V) 10MA + LOAD PER CHANNEL

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TITLE: DUAL CABLE DRIVER (9610-219)

DWN	KAIN	7/24/72	DES	
CHK			ENGR	
SCALE	NONE		FSC	31160

Datum inc.
1363 S. STATE COLLEGE BLVD.
ANAHEIM, CALIFORNIA 92806

SIZE		SHT	OF	REV
B	16041	1	1	A

REVISIONS			
LTR	DESCRIPTION	DATE	APPROVED
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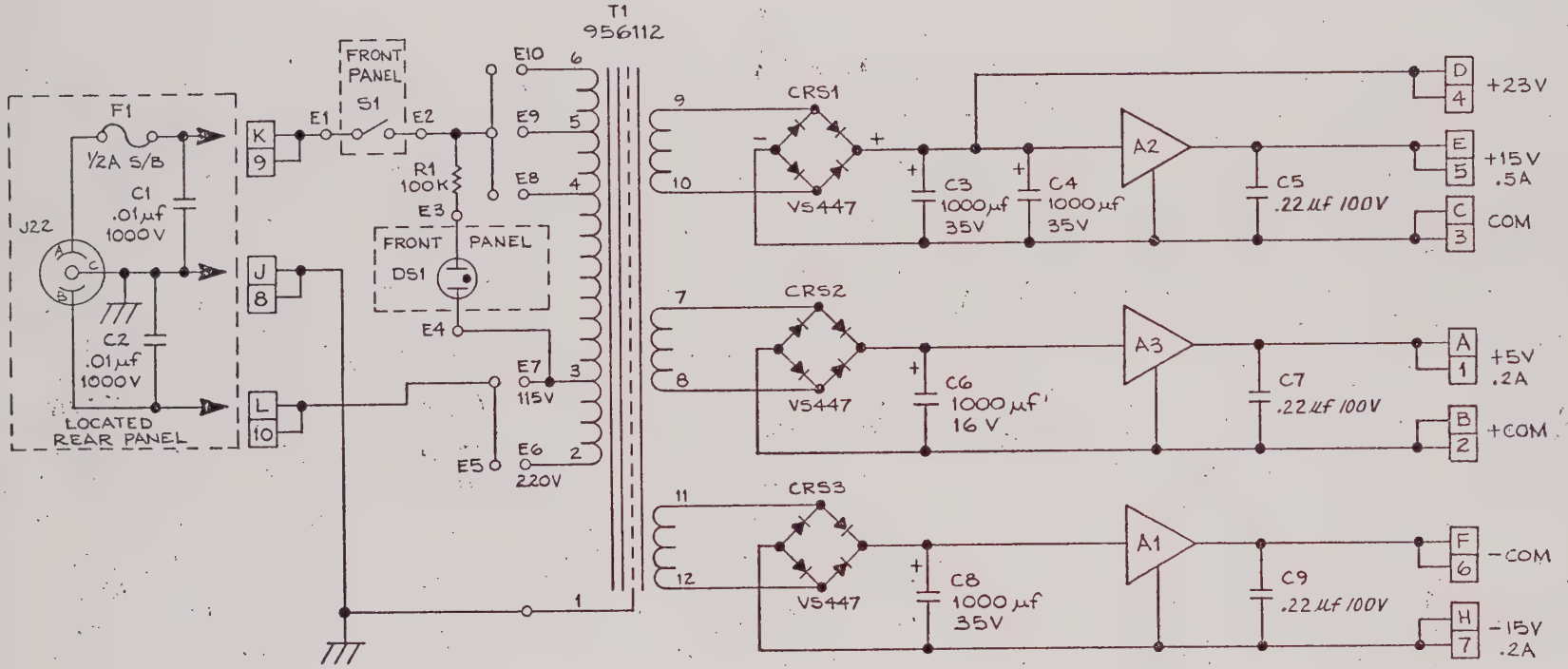

1. A1 & A2 ARE UGH7815393 MFG BY FAIRCHILD
   A3 IS UGH7805393 MFG BY FAIRCHILD

NOTES: UNLESS OTHERWISE SPECIFIED

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UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOL: .XX ± .03
.XXX ± .010
ANGLES ± 1/2°

TITLE
POWER SUPPLY
(9610-150-1)

datum inc.
1363 S. STATE COLLEGE BLVD.
ANAHEIM, CALIFORNIA 92806

DWN	MILES	DES			
CHK		ENGR			
SCALE	NONE	FSC	31560	SIZE B	16445 A
				SHT 1 OF 1	REV

DIETZGEN 196M-10

SECTION VI
MATERIALS LISTS

The materials lists enumerated in the Table of Contents can be found on the following pages.

DATE: 9.29.86
DRAWN: SATINDER
CHK:

PARTS LIST

datum inc.

JOB NO:
QUANTITY

REV

TITLE: TIMING TERMINAL UNIT

ASS'Y NO: 9610 - 7041

SHT 1 OF 1

ITEM	STOCK/PART NO.	DESCRIPTION	MFR/SPEC	QTY.	REF. DES.	UNIT COST	LOT TOTAL
1	9610-140-1	CHASSIS ASSY STK	DATUM	1			
2	" -150-1	POWER SUPPLY (16445) STK	"	1			
3	" - 219	DUAL CABLE DR. (16041) STK	"	5	JA 2-6		
4	" - 2111	" DIFF. DIGITAL (15439)	"	1	JA1		
5	SK 9610-1	SHIPPING KIT	"	1			
6							
7	1702-0020	CONNECTOR 20P	"	7	XA1-6, 14		
8	1704-1002	" BNC	"	14	1A-6A, 1B-6B, INPUT 1, 2		
9	1795-0001	WASHER	"	14			
10	" -0002	"	"	14			
11							
12	704874	REAR PANEL	"	1			

NOTES:

DATE: 7-4-76

DRAWN: CAEY

CHK: _____

MATERIAL LIST

datum inc.

JOB NO: _____

QUANTITY _____

REV

TITLE: POWER SUPPLY

ASS'Y NO: 9610-150-1

SHT / OF /

ITEM	STOCK/PART NO.	DESCRIPTION	MFR/SPEC	QTY.				REF. DES.	UNIT COST	LOT TOTAL	
1	16445	POWER SUPPLY	DATUM	1							

NOTES:

DATE: 10-17-80
DRAWN: CARY
CHK:

MATERIAL LIST

datum inc.

JOB NO:
QUANTITY

REV

TITLE: DUAL CABLE DRIVER

ASS'Y NO: 9610-219

SHT 1 OF 1

ITEM	STOCK/PART NO.	DESCRIPTION	MFR/SPEC	QTY.				REF. DES.	UNIT COST	LOT TOTAL	
1	16041	DUAL CABLE DRIVER	DATUM	1							

NOTES:

DATE: 1-18-83
DRAWN: QEE
CHK:

MATERIAL LIST

datum inc.

JOB NO:
QUANTITY
REV

TITLE: DUAL DIGITAL DRIVER
ASS'Y NO: 9610-2111
SHT 1 OF 1

ITEM	STOCK/PART NO.	DESCRIPTION	MFR/SPEC	QTY.				REF. DES.	UNIT COST	LOT TOTAL	
1	15439	DUAL DIGITAL DRIVER	DATUM	1							

NOTES:

DATE: 9-8-71
DRAWN: CARY
CHK:

MATERIAL LIST

datum inc.

JOB NO:
QUANTITY:

REV: B

TITLE: DUAL DIFFERENTIAL DIGITAL DRIVER

ASS'Y NO: 15439

SHT / OF 2

ITEM	STOCK/PART NO.	DESCRIPTION	MFR/SPEC	QTY.				REF. DES.	UNIT COST	LOT TOTAL	
1	0102-0102	RESISTOR 1K, 1/4W, 5%	DATUM	1				R1			
2	" -0103	" 10K " "	"	4				R2-5			
3	" -0105	" 1MEG " "	"	2				R6,7			
6	0220-0335	CAPACITOR 3.3uf, 35V	"	2				C1,2			
7	" -0475	" 4.7uf "	"	3				C3-5			
8	0226-0104-1	" .1uf, 100V	"	6				C6-11			
11	0301-7400	IC N7400A	"	1				U5			
12	" -8830	" DM8830N	"	1				U1			
13	" -9602-2	" 9602PC		1			*	U4			
14	NE527N	"	SIGNETICS	2				U2,3			
17	0500-0306	DIODE 1N914A	DATUM	2				CR1,2			
19	1706-1447	BUSHING, BLACK	"	1				COM			
20	" -1447-1	" , WHITE	"	4				TP1-4			
22	" -3000	TEST POINT BLK	"	1				COM			
23	" -3002	" " RED	"	4				TP1-4			
25	1708-3788	SOCKET, SOLDER 14P	"	4							
26	" -3789	" " 16P	"	1		*					

NOTES:

DATE: 08-11-80
DRAWN: RHE
CHK:

MATERIAL LIST

datum inc.

JOB NO:
QUANTITY

REV A

TITLE: DUAL CABLE DRIVER

ASS'Y NO: 16041

SHT 1 OF 1

ITEM	STOCK/PART NO.	DESCRIPTION	MFR/SPEC	QTY.	REF. DES.	UNIT COST	LOT TOTAL
1	0102-0390	RESISTOR 39Ω 1/4W 5%	DATUM	2	R5,10		
2	- -0560	- 56Ω - -	"	4	R3,4,8,9		
3	- -0121	- 120Ω - -	-	2	R2,7		
4	0153-1003	- POT 100K	-	2	R1,6		
5							
6	0220-0475	CAPACITOR 4.7μF 35V	-	4	C1,3,6,9		
7	0226-0103-1	- .01μF 100V	-	4	C2,4,7,8		
8		- FACTORY SELECT	-	2	C5,10		
9							
10	0301-NH02	IC LH0002CN	-	2	A1,2		
11							
12	1706-1447	BUSHING	-	1	(COM)		
13	- -1447-1	-	-	4	(TP1-4)		
14	- -3000	TEST POINT	-	1	COM		
15	- -3002	- -	-	4	TP1-4		
16							
17	2325-2007	FASTENER	-	2			
18							
19	170531A	PC BOARD STK	-	1			
20							
21	703490	FRONT PANEL STK	-	1			
22	703939	COVER PLATE	-	1			

NOTES:

DATE: 4-8-82
DRAWN: LNA
CHK:

MATERIAL LIST

datum inc.

JOB NO:
QUANTITY

REV A

TITLE: POWER SUPPLY

ASS'Y NO: 16445

SHT 1 OF 1

ITEM	STOCK/PART NO.	DESCRIPTION	MFR/SPEC	QTY.	REF. DES.	UNIT COST	LOT TOTAL
1	0102-0104	RESISTOR 100K, 1/4W, 5%	DATUM	1	R1		
2							
3	0219-0108	CAPACITOR 1000uf, 16V		1	C6		
4	" -0108-1	" 1000uf, 35V		3	C3, 4, 8		
5	0212-0224	" .22 uf, 100V		3	C5, 7, 9		
6							
7	0301-7805	I.C. 7805UC		1	A3		
8	" -7815	" 7815UC		2	A1, 2		
9							
10	0540-0447	BRIDGE RECT VS447		3	CR51-3		
11							
12	0601-6112	TRANSFORMER 956112		1	T1		
13							
14	1202-0102	SWITCH SPDT		1	S1		
15							
16	2107-0001	LAMP ASSY		1			
17							
18	2310-4003	SPACER 7/16"		2			
19	" -4004	" 1/2"		2			
20	2325-2007	FASTENER		2			
21							
22	703098	FRONT PANEL STK		1			
23	703099	COVER PLATE STK		1			
24	704157	PLATE STK		1			
25							
26	170935 N/C	PC BOARD STK		1			

NOTES: INSTALL A1, A2 & A3 WITH #4 NYLON SCREWS AND MICA WASHERS.

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